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ABSTRACT

Educational reform in developing countries, specifically in Saudi Arabia, will be facilitated if certain strategies are employed when implementing educational change. Problems which restrict reform tend to be a culture which opposes change, staffing, finances, a shortage of relevant learning materials, excessive centralization of authority, expatriation by the educated, and urban migration. Also counterproductive to educational reform are rigorous standards of achievement and the ethnocentrism of foreign educated nationals who fail to understand the culture in which they are working. Strategies to combat these problems include carefully selecting and working toward established educational goals, reorienting students toward their traditional culture, and improving the quality of instruction in the classroom. Educational research and development centers which would become a center of authority in the system and laboratory schools which would offer a place for experimentation in educational alternatives should be established. Current projects in a Saudi Arabian research center include analysis of a leading Arabic language private school, an investigation of English language teaching, proposals for introducing computer-assisted instruction, and the development of standardized measurement instruments. (KC)

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A Strategy for Promoting Educational Reform in Developing Countries

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

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Introduction

All societies encompass forces for change and forces for conservation. (1) Saudi Arabia is one of a special group of states which are, at the same time, seeking development and disdaining revolution; fostering technological advance and sustaining cultural continuity. This paper is directed at such non-revolutionary, but developing,countries. Development, in this context, is described more in technological, economic, and scientific areas of interest; and less in cultural, religious, and moral ones. Obviously, all such elements are interwoven in the fabric of society, but it is valid to indicate a variance in emphasis among them.

To the educator such non-revolutionary developing countries offer a particular opportunity because schooling is seen as a preeminent vehicle for creating a modern state while preserving the honored aspects of the status quo. Furthermore, educators sympathetic to the values of the "free world" cannot fail to be aware of the political and ideological significance of their work.

It is worth noting why educational reform is needed in these countries, rather than only an enlarged version of their traditional systems. The reasons vary according to the specific venue but are likely to include: (1) an inability of the old system, due to its inherent qualities, to expand schooling beyond schooling for a small elite; (2) no adequate precedent for scientific and technical education; (3) the old system's propensity toward stimulating dropout; etc. (2)

This paper is written by specialists in curriculum development who have administered the Educational Research Center, College of Education, Riyadh University, for the first two years of its existence. To complete these introductory remarks and relate

them to the context of educational research and development, we cite a passage from Arthur Coladarci's remarks to our faculty this year:

> In my own speculations, for what they may be worth, some major characteristics of education and educational research in developing nations seem to be the following:
>
> (1) In developing nations, education is more likely to be viewed as an explicit instrument of national development. That is, the agenda of education and educational research may be largely determined by the general agenda of national concerns. Thus, one is likely to find, in developing countries, that educational research must engage, and is influenced by, all of the major dimensions of national concern: intellectual, political, economic, social, religious, to name only a few.
>
> (2) In developing nations, there is likely to be more feeling of "immediacy"--a sense that there is a great deal to accomplish and that it all must be done soon.
>
> (3) In developing nations it is likely that the pressure on educational research is for immediately applicable results--a pressure for "practical" enterprise and perhaps less pressure for theory development.(3)

The nature of the non-revolutionary developing country, the role of the educator, the reasons for reform, and the special character of R&D in the developing country make up the context for our further remarks.(4)

The analytical approach taken in what follows begins with an identification of what we perceive to be the distinctive problems restricting reform in developing countries. Secondly, a set of general tactics is proposed and then made concrete by a description of institutional means through which such tactics can be implemented. Next, true to our specialty, we focus on curriculum change. Finally, the R&D work upon which our statements are based is synopsized. Our analysis is intended

to be of relevance to the practitioner of reform.

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Special Problems Restricting Reform

Traditional developing countries consciously try to preserve what they believe is best in their heritage while adapting modern ways which are seen as necessary and desirable. "Some cultures value novelty and change positively, for their own sake," (5) but the countries we are addressing here do not, and the broad realm of tradition is a minefield shown at the peril of the reformer. Occasionally, a specific traditional attitude favors a specific reformist act. The rule, of course, is otherwise, and tradition is a particular problem inhibiting reform in non-revolutionary developing countries.

In the developing context the reformer faces less a problem of upgrading personnel than of creating it. Staffing is a problem of enormous magnitude where language serves to isolate potential reformers from the vital work at hand.

"There is a large, and, in most [developing] countries, growing demand for education; governments are trying to meet this demand despite severe resource constraints." (6) Saudi Arabia, as a great producer of petroleum, is an exceptional case. The vast majority of developing countries are burdened with dire economic difficulties and resources which are inadequate for providing even minimal social services. Finances are an unavoidable problem limiting reform in education.

The publishing explosion of the post-war West is of no benefit in providing learning materials to people of exotic tongues. The matter is complicated by the existence of patois for which no written forms exist. Arabic presents a different problem: literary (written) Arabic is a classical language which is to a significant degree different from colloquial (spoken) dialects of the language. In most developing countries there is a shortage of learning materials (print and non-print) which

has no counterpart in developed countries.(7)

"In a new or developing country the influence of the politician is relatively more widespread than in more mature societies [sic]."(8) For a variety of observable reasons, including this one, centralization of authority is frequently excessive in the developing country. Decisions, both trivial and profound, tend to be made by a few people in whom authority resides. Some centralization is no doubt helpful and necessary; an excessive amount undermines the role of managers and practitioners and creates a bottleneck at the top. Decisions may be made at a level too remote from the field.

Finally, expatriation by the educated is a chronic dilemma for the reformer, as is the emerging educated class's penchant for life in the state's cities to the exclusion of the countryside. This trend toward urban migration poorly distributes the educated population. Educated persons who do not emigrate resist living outside of urban centers. These demographic phenomena are well-documented by the countries involved. (9)

No general list, as this one is, can profile a given individual country. We have tried here to describe the most typical problems of developing countries as seen by the educational reformer. It is worth reflection that educators trained in the West rarely address such issues in their curriculum of graduate study. Or,

> ... putting the matter in another way, American society-like all other societies-is characterized by medical, engineering, agricultural, educational, and many other kinds of problems. These problems are all functions of American culture. Professional training,therefore, and quite rightly, is designed to teach people to meet the needs posed by these problems. There is no need to teach the average professional student to think first of identifying major problems and then working out solutions to them. The major problems are thought to be quite obvious; the need is to ameliorate, not to identify, them. The professional knows the kinds of questions his society will ask

> of him and the job demands it will make upon him. These are the tests he must pass successfully. Consequently, most professional training is designed in terms of programs rather than underlying problems, and the technician comes to judge himself by what he has to offer to the programs in which he participates. Professional training produces program-oriented specialists. Only rarely does it produce problem-oriented specialists. (10)

From listing problems it is a direct step to initiating a strategy of response. Let us begin to propose that strategy.

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A Strategy for Reform

Initially, it is useful to specify some counterproductive tendencies that characterize educational reform in the developing country. In the pursuit of academic respectability, for example, educators may be tempted to impose what are thought to be rigorous standards for achievement, but which are, in fact, no more than the reincarnation of timeless mental discipline theories of learning. There is a tendency to resort to what is most difficult in the Western model under the assumption that these practices must, therefore, be best. In the schools this bias is manifested in curricula which are difficult to understand, instructional methods which are not interactive or activity-oriented, evaluation which measures exclusively by rote, and so on. There exists a tendency, then, to emulate what is thought to be most difficult due to the assumption that it therefore is most academically reputable and sound. The consequences of such a policy are poor student motivation and teaching that is of limited impact, especially at the higher levels of cognition and affect.

A second common error is the failure to counteract the human tendency toward ethnocentrism. Not only foreign contractees but also foreign-trained nationals may fail to study the culture in which they are to work in order to develop principles and practices which are sensitive to extant mores and designed to retain the desirable aspects of the traditional culture. Failure to examine the culture as it is not only is bad interpersonally; it results in the waste of factors that could assist

the educator. (11)

Having noted these common pitfalls, we can proceed with a description of principles guiding reform. First, selectivity should be a hallmark of our strategy. That is, the careful selection of specific goals rather than a striving for general reform without "an order of priority among [the] categories" (12) of change. There is a tendency in developing countries to try to duplicate foreign educational systems or sub-systems in toto instead of working to do a few things well. This selective approach is suggested not only because of the limited resources available to the reformer, but also because, in this way, the qualitative dimension of reform may be better attended to. Furthermore, practical success in a limited number of target areas sets a positive precedent for what follows and establishes worthy standards for emulation.

Incrementalism is a second guiding principle for reformers. Just as goals are narrowed selectively, so, too, is action toward an objective conceived in gradations. Counterposed to the pressure to develop rapidly must be a patient determination to meet limited objectives with thoroughness on the way to a culminating goal.

In the rush to proclaim a major success, there is the danger of not really accomplishing even the component tasks, and the passage of time is underutilized as a passive, inevitable resource. (13)

Reformers are dependent on wise governmental officials for authorization to follow the less glamorous, but more meaningful, paths of selectivity and incrementalism. Those with responsibility for evaluation in education are charged with reaching past gross statistics and impressive verbal reports to less tangible, but more vital, evidences of achievement. Discussing R&D, Levin frankly states, "In fact, useful research findings will tend to be those which reinforce the directions

of the existing government and enable it to solve its problems with small and marginal reforms." (14)

The social integration of the educated should be a theme in reforms. A deliberate effort should be made to re-orient students toward their traditional culture as new realms of awareness are opened to them. Without such an effort the inference is too often drawn that the society's traditions are to be scorned. By the time a later generation comes to romantically recall the past, the traditional culture has been utterly disrupted leaving widespread anomie. Alternatively, if the social integration of the educated fails, a reactionary revolt by disaffected traditionalists may follow. (15)

In transferring Western pedagogy to developing countries such a mass of scholarship in so many specializations within education becomes available that it is easy to lose a sense of priority. The foundations of good schooling may never be laid as a result of available resources being distributed among too many activities in too many compartmentalized specializations.(16) Our final concept is to grant emphasis to improving the quality of learning in classrooms through attention to the methods and materials of teaching. The danger of formalism and pedantry in the developing country is that formalism may appear where no counterbalancing tradition of faith in schooling exists; where no general backlog of good will exists. Above all else the fundamental experience of personal improvement ("growth") through learning must be felt by large numbers of students throughout the educational system. The flight from practical application that imperils American R&D will be fatal, not merely hazardous, to educational reform in the developing country. (17)

The strategy specified here is comprised of two techniques for directing reform (selectivity, incrementalism) and two themes (social integration, learning in classrooms) for use

in setting priorities for action. These proposals are made specifically in response to the special problems posed by the power of tradition, financial limitations, and expatriation. In the next section institutional means will be described which address the development of staff and learning materials, in addition to embodying the strategy which has thus far been presented in abstract form.

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Institutional Means of Reform

To keep the scope of what is proposed here manageable it will be assumed that some basic institutions are already operating in the country of interest. In Saudi Arabia, for example, there has been for several decades a Ministry of Education directing a rapidly growing network of compulsory public schools and institutions for training teachers.

The spirit of what follows is felt to be consonant with Bronfenbrenner's "Experimental Ecology of Education," [18] particularly his

> Proposition 20. Research on the ecology of education requires experiments involving the innovative restructuring of prevailing ecological systems in ways that depart from existing institutional ideologies and structures by redefining goals, roles, and activities, and by providing interconnections between systems previously isolated from each other. (19)

Such "redefining" and "[providing] of interconnections" are stressed in the Educational Research and Development Center and Laboratory School as we conceive them.

A system of EDUCATIONAL RESEARCH AND DEVELOPMENT CENTERS serving the geographic regions of the country holds promise as an institutional force for facilitating reform. Such a system is currently emerging in Saudi Arabia and demonstrating its value through its work. These Centers aspire to be what Goodlad calls "a compelling, different

drummer"[20] and a drummer with "longevity" [21]

An R&D Center creates a cadre [22] of reform-minded professionals, working in concert toward the achievement of a set of selected goals. A disciplined team which is dedicated to the implementation of a specific agenda has the opportunity to exercise influence on an educational system which is still much involved in its own definition and constitution. Such a cadre of professionals will not necessarily emerge elsewhere, for the other educational roles within the system tend to be focused on priorities other than reform or innovation. The value of a cohesive team of persons approaching an amorphous system which is trying to improve itself derives from a reformist "role" being established while the professional discipline required in a selective, incremental approach is being maintained.

The R&D Center must embody an ethos of reform. Its mission must be clearly defined. No other contradictory function should be thrust upon it (e.g. rendering it an apologist for the status quo or entangling it in an "ivory tower" research agenda whose priorities have been dictated abroad from inappropriate assumptions). The Center must not be co-opted into merely a bureaucratic or formalistic role. This ethos must be "nurtured" [23] consciously so that the Center retains its distinctive set of progressive goals.

Given a staff and a mission, the R&D Center becomes a new locus of authority within the system. Binding authority through force of regulation is not a goal; rather, authority won through the presentation of a creative program administered by an enthusiastic group of educators. There is a definite limit to what can be accomplished through one or another of the forms of coercion available within institutional education (e.g. grades, credits, certification, accreditation, tenure, renewal, etc.). The Center provides an alternative, addressing the best instincts of

those involved in its work. We are proposing an institution dedicated to the notion of reform and renewal.

Reform which the Center does not influence directly, it can affect by opening new lines of communication within the educational community. This occurs both at the level of discussion and via the publishing activities of the center. Melander and Pitts, for example, suggest that:

> Both regular and special means of communication, such as newsletters, can be sponsored to clarify institutional policies relating to academic development, opportunities for curricular development, or experiments underway. Members of the academic community who are especially interested in academic innovation can be helped to identify each other and to form communication networks among themselves.(24)

A newsletter is of primary importance but it must have a cooperative base with teachers involved as contributors, not merely consumers. The publishing of occasional papers and monographs is also of value.

The R&D Center, then, becomes a place for teachers and others with an interest in educational reform to mingle and a source of encouragement and material assistance. In this manner the Center provides the "supportive peer reference group" (25) which Goodlad postulates as helpful to reform. It is an agency whose priorities are headed by reform; one which can practice discipline in its selection of goals and maintain continuity as the increments of progress are assembled. The Center must be a new institutional force propelled by its reformist philosophy and characterized by a cooperative, working relationship among the educators who come together there. ".... teachers, who often feel themselves at the bottom of the system," (26) are to be partners in reform at the Educational Research and Development Center.

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A second vehicle for fostering reform is the LABORATORY SCHOOL operating as a model for the educational community as well as a place for experimentation. We believe, as Goodlad states in the first of his "postulates pertaining to school improvement," that

> the optimal unit for educational change is the single school with its pupils, teachers, principal--those who live there every day--as primary participants. (27)

Reforms which are controversial should be shown first in demonstration where skeptics can be won over. The conservational attitude of a traditional society runs contrary to the Western bias that what is new, ergo is better. Without this bias toward change it becomes vital to show materially that a reform is, indeed, an improvement. This is what Gartner and Riessman refer to as a "showcase" (28) function. Additionally, they conclude, there is a function through which the demonstration:

> provide[s] a mechanism whereby a system which is in trouble can be reformed by utilizing the findings and processes of the demonstration. (29)

We see the need for each of these functions in the developing country context.

The Lab Schools should consciously develop as a training ground for reformist teachers who, after a limited tenure, move on to the general community of schools. Through such a process the seeds of reform are widely broadcast by teachers who have gained experience in progressive practice. Innovation otherwise can be easily discredited by well-intentioned but naive practicioners.

High on the experimental agenda of the Lab School should be instructional alternatives like educational television and computer-assisted instruction which help to relieve staffing shortages and introduce innovational methodologies. Additionally, these technological advances force a rethinking of the curriculum. Visitors to Saudi Arabia are surprised to discover that video-tape, computer,

color television and other such technologies are established here (although not yet fulfilling their potential in education). (30)

The Lab School works to relieve the problems of the social integration and expatriation of the educated by showcasing dedicated professionals creatively employed in their homeland. Innovators are given a chance to express themselves while traditionalists are having their suspicions reduced.

The use of the Lab School for experimentation is of similar importance. Reforms must be refined before being presented at large; critics must be given evidence of success and wrong-headed projects nipped in the laboratory stage. (31)

The R&D Center and the Lab School have many features in common with one of special import: each must be given an adequate measure of autonomy with which to conduct its programs. Otherwise their priorities will be subjugated to the agenda of a non-reformist institution or agency and their good work curtailed.

Given that autonomy, the Center and the School provide the institutional means for implementing the agenda of reform and disseminating innovation throughout the educational system.

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Curriculum Reform

Riyadh University's Educational Research Center has, in the two years of its existence, made progress in identifying the problems facing the curriculum reformer. In the Center's preliminary projects several themes have emerged as curriculum change has been studied.

The existence of and access to high quality <u>textbooks and supplemental reading materials</u> is one such problem. The publishing flood with which Westerners are familiar is not universal in quantity or range. Particularly missing are the kinds of intermediate materials, aimed at the adolescent and presented in fine

graphic style, which take the student from basic to advanced reading. (Examples would be the World Book Encyclopedia and Time-Life Books.) Also, for all levels, the choice among textbooks for a given subject is severely limited--often to one book. Delivery problems complicate the development of the curriculum.

The gaps and shortage in the available Arabic materials help perpetuate the point of view that learning is more of a task than a pleasure. Even progressive teachers get chanelled into a traditionalist mode by the resources available to them. Saudi Arabia's Ministry of Education is responding to this need in a number of ways including a call to Riyadh University's Educational Research Center to develop a new curriculum for teaching the literary Arabic language(including basic reading materials.)

In a related area, instructional methods tend to be traditional and non-interactive. Rote is highly valued. As has been discussed above, a mental discipline view of learning prevails. Media technology has arrived but not always in an effective way. The physical resources available may restrict methods through lack of space or soundproofing, or too high a ratio of students to teachers. There is,too, the difficulty of students, impatient with passivity, over-reacting to less restrictive methodologies. None of these problems is insurmountable and all are being approached. Ironically, Saudi instructional practices are not so different from what we often find in the West.

The curriculum reformer encounters special challenges emanating from the staffs of schools and colleges. Not surprisingly, there exists a strong bias toward traditional pedagogy for reasons which have been discussed. Also, the high percentage of educators who are foreign contractees creates special considerations: continuity is less easily sustained and intra-faculty

relations are more complex; standardizing certification becomes difficult. Finally, although professors have a sound social position, teachers, in our experience, need an improvement in theirs. The status of teachers is not what it needs to be and is, therefore, demoralizing to some. This status problem begins within the schools where administrators function at some interpersonal distance from the teachers.

The curriculum reformer can address such a situation productively and would be helped greatly, in our view, by the institutional framework prescribed here, specifically the R&D Center and Lab School.

The need for an increase in educational publishing could be addressed through foundational or governmental funding of special projects--ones suggested, perhaps, by the R&D Center.

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Work In Progress

In order to offer an idea of what the preceding analysis is based upon, we list a representative group of current or recent past projects of Riyadh's Educational Research Center.

The Riyadh R&D Center has completed one major development project in which the nature of Saudi education in a specific school has been clarified and reform implemented. The Riyadh Schools Study, (32) in which the life and resources of Riyadh's leading Arabic-language private school (K-12) were analyzed and renewed, was conducted over a nine month period. The conclusions stated here have been greatly shaped by this study. Continuity ("longevity") in the reform effort was seen to be of high priority in making lasting change.

Individuals' investigations of English language teaching within the Kingdom are nearing completion. The curriculum and instruction themes noted here have emerged in these studies, for example, conservative teaching methods and limited choices

among materials.[33]

For help in administrative decision-making and as a part of the development of standardized instruments (in Arabic), the faculty of Riyadh University's College of Education itself has been surveyed.[34] The special position of foreign contractors was a theme in these findings(derived from use of the "Work Environment Scale.")[35]

Proposals for introducing computer-assisted instruction on an advanced pilot level are being evaluated within Riyadh's Educational Research Center. Review of such proposals[36] has reinforced the view that CAI has considerable promise for Saudi education.

Awaiting funding are proposals to survey Islamic educational thought for the purpose of developing improved teacher education curricula; and a major investigation of Arabic language teaching in the Kingdom; etc. There is a movement toward the establishment of a university laboratory school in Riyadh to complement the Ministry of Education's model elementary (non-graded) school, comprehensive high schools, and other advanced schools.

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Conclusion

In an attempt to review the major challenges facing the reformer in Saudi Arabia and the activities which hold particular promise, this paper has examined the national situation from several vantages. By presenting special problems and general tactics, institutional means for reform and the issues facing the curricularist, it is hoped that a coherent and useful strategy has emerged.

Much of this is generalizable to other developing countries; some is not. Even within the Arab World, ALECSO has called for " a flexible strategy for educational renewal....which

can be adapted to the conditions of each country." (37) We have tried to describe that flexible strategy.

The educator interested in reform in the developing country has, as he or she considers what is written here, an opportunity to reflect on education in the developing venue where the need to advance has particular immediacy. Western educators have a great deal to offer countries such as Saudi Arabia, both in person and through the training of students abroad. There is a need for the developing countries to be understood educationally as they are, with allowances made for cultural differences and limitations in resources. The people of such countries are ready to adopt, as their own, reforms which are designed with care and implemented with sensibility.

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Footnotes

1. George M. Foster, Traditional Societies and Technological Change, 2nd Ed., Harper & Row, New York, 1973, p. 76.

2. Strategy for Improving Arab Education, Arab League Educational Cultural, and Scientific Organization, (ALECSO) Cairo, November 1976, pp. 235-238 (in Arabic).

3. Arthur Coladarci, "Philosophical Dimensions of Educational Research in Developing Nations," Educational Research Center, Riyadh University (Saudi Arabia), December 1978, p. 1.

4. This paper focuses on "formal education" exclusively. For a more general discussion the reader is referred to "Special Issue: Education and Development," Harvard Educational Review, Vol. 45, No. 2, May 1975 and Special Issue "Human Resources and International Development," Teachers College Record, Vol. 76, No. 4, May 1975. Non-formal education and the politics of educational development are treated therein.

5. Foster, op. cit., p. 82.

6. Education Research Priorities, International Development Research Centre, Ottawa, Canada, 1976, p. 6.

7. "...the 34 industrialized countries with only 30 percent of the population produce 81 percent of the world's book titles." Philip G. Altback,"Literary Colonianism: Books in the Third World," Harvard Educational Review, op. cit., p. 227 citing Ronald Barker and Robert Escarpit, The Book Hunger, UNESCO, Paris, 1973, p. 16. Also, see Frederick H. Harbison, "Education: Nationwide Learning Systems," Teachers College Record, op. cit., p. 559.

8. Adam Curle, Educational Strategy for Developing Societies, Tavistock Publications, London, 1970, p. 65.

9. Jonathan Kandell, "Flight from the Farms and Rapid Industrialization Tormenting Iran." The New York Times, November 16, 1978, p. A11, writes: "During the last 15 years, the percentage of Iranians living in rural areas dropped to 52, from 75, and today only a third of the labor force works in the countryside."

10. Foster, op. cit., p. 181.

11. Riyadh University's Educational Research Center has proposed to undertake a general review of the history of Islamic educational thought to help reverse this trend.

12. Education Research Priorities, op. cit., p. 7.

13. A. El-Mahdi Abdel-Halim and Paul Shaker, "Educational Reform in Developing Countries," Educational Research Center, Riyadh University (Saudi Arabia), p. 3.

14. Henry M. Levin, "Why Isn't Educational Research More Useful?" Prospects, Vol. VIII, No. 2, UNESCO, Paris, 1978, p. 160.

15. Kandell, op.cit., writes: "'The people are turning to us because they realize that modernization and development have not brought peace of mind,' said the Ayatollah Shareatmadary, a religious leader who is considered a [more] moderate opponent of the regime." Also, ALECSO, op. cit., p. 202: "The Arab countries have followed the industrialized Western nations in their quest for development. This model yields achievement in material and industrial matters, but, as a matter of fact, has very limited benefit for the majority of the people--especially those who are living in the countryside."

16. Foster, op. cit., p. 188.

17. J.V. Baldridge, T.E. Deal, R. Johnson, J. Wheeler, "Improving Relations Between R&D Organizations and the Schools," R&D Memorandum No. 115, Stanford Center for Research and Development in Teaching, Stanford, California, November 1973, pp 7-8 "The Researcher's Lack of Attention to Practical Problems."

18. Urie Bronfenbrenner, "The Experimental Ecology of Education," Teachers College Record, Vol. 78, No. 2, December 1976, pp. 157-204.

19. Bronfenbrenner, op. cit., p. 198.

20. John I. Goodlad, The Dynamics of Educational Change, McGraw-Hill, New York,1975, p. 178.

21. Ibid.

22. Alan Gartner and Frank Riessman, "Strategies for Large-Scale Educational Reform," Teachers College Record, Vol. 75, No. 3, February 1974, p. 353.

23. Ibid.

24. E.R. Melander and Edward I. Pitts, "Faculty and Administrative Roles in Fostering Curricular Innovation", The Journal of General Education, Vol. 29, No. 2, Summer 1977, p. 116.

25. Goodlad, op. cit., p. 180.

26. Fred M. Hechinger, "About Education: U.S. Comes to Aid of Teacher," The New York Times, November 14, 1978. p. C5.

27. Goodlad, op. cit., p. 175.

28. Gartner and Riessman, op.cit., p. 351, (see their note #7.)

29. Ibid.

30. "The technology of computerized instruction is now both sufficiently advanced and cost-effective to make its inclusion in [Riyadh University's Center for Instructional Technology] appropriate." Arthur Coladarci, "Report Following Consultation," Educational Research Center, Riyadh University (Saudi Arabia),January 1979, p. 8.

31. Bronfenbrenner, op. cit., discusses the hazards in any such "laboratory" setting.

32. The Riyadh Schools Study Report, Educational Research Center, Riyadh University (Saudi Arabia), June 1978, 300 pp. (in Arabic).

33. Results of these studies are in press, Riyadh University Educational Research Center. Also, Jamil M. Shami, "Community Service Through Educational Development : The Riyadh Schools Study," paper presented at the annual meeting, American Educational Research Association, 1979, San Francisco, ERIC Number-----.

34. Mohammed A. Rasheed, "Social Climate and Administrative Decision-Making: Research for Institutional Renewal," paper presented at the annual meeting, American Educational Research Association, 1979, San Francisco, ERIC Number -----.

35. Rudolf H. Moos and Paul M. Insel, "The Work Environment Scale" Consulting Psychologists Press, Palo Alto., Calif., 1974. Translated, with permission, into Arabic for research purposes, Riyadh, 1978.

36. Including one involving cooperation with Stanford's Institute for Mathematical Studies in the Social Sciences.

37. ALECSO, op. cit., p. 250.

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Addendum

"In a recent survey conducted by Time-Life of materials available to students in Arab countries, we learned that there were virtually no publications to be found in Arabic which promote basic scientific and technical literacy."

--"Proposal for a Saudi Arabian/Time-Life Books Cooperative Publishing Project," Time-Life International (Amsterdam), 1979, p. 1.